ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Delivery was made last fortnight to the Army Engineers of the first U.S.-manufactured skid-mounted nuclear power reactor capable of being transported by air. Supplied by Alco Products, Inc., Schenectady, N.Y., who designed and built it, the pressurized-water nuclear power plant will be installed in snow tunnels at Camp Century, Greenland, an advanced base of the Army's polar research and development center. PM-2A will deliver about 1,560 net kw of electricity plus about 1 million Btu's/hr of steam for the camp's water supply system. (This will be the third operational reactor designed and built by Alco for the Army. The first was built at Ft. Belvoir, Va., for the Army in 1957. The second is currently under construction at Ft. Greely, Alaska, by Peter Kiewit Sons' Co., from an Alco design.) (Other PRODUCT NEWS, p.5 this LETTER.)

Largest cobalt-60 gamma radiography facility ever built in the U.S. has been sold by Radiation Engineered Services, Norristown, Pa., to Quaker Alloy Casting Co., Myerstown, Pa., for non-destructive testing. The unit will contain 1,400 curies of cobalt-60; it will be installed in a room specially designed to house it. The focal spot diameter will be only 1 centimeter comparing favorably with that of a 2 million volt x-ray machine. (Other BUSINESS NEWS, p.2 this LETTER.)

Contract to construct support facilities for the mobile low power reactor facility No. 1 at the National Reactor Testing Station, Arco, Idaho, has been awarded by the USAEC to Hayes-Henry Construction Co., Idaho Falls. In the amount of $311,035, the contract calls for construction of various buildings, utility services, etc. (The mobile low power reactor will be a prototype power plant of 400 electrical kw capacity. It is being developed by Aerojet-General Corp., and will be test operated at the Arco station.) (Other CONTRACT NEWS, p.2 this LETTER.)

Sales and earnings of Anton-Imco Electronics Corp., reached record levels in the first quarter ending March 31, 1960 with per share earnings of 50¢ according to board chairman Nicholas Anton. Earnings were 2¢ per share for the like period last year. First quarter sales were $2,505,285 and net income was $124,090 compared with the same period 1959 sales of $1,565,357 and net earnings of $5,692. Formerly a subsidiary of U.S. Hoffman Machinery Corp., Anton-Imco was "spun off" in January of this year to U.S. Hoffman shareholders. Firm's products are the specialized nuclear instrumentation and other electronic devices of Anton Electronics Laboratories, Brooklyn, N.Y., and the missile and aircraft components of Intercontinental Manufacturing Co., Garland, Texas. (Other FINANCIAL NEWS, p.4 this LETTER.)

New issue of "Radiological Health Data" of the Public Health Service, Wash. D.C., shows levels of radioactivity in air, water, milk and vegetable samples obtained from various parts of the U.S. Compared with previous reports, air and water showed no unusual levels. Highest levels of strontium-90 in foods were in spinach, tea and animal forage crops; all were well below permissible levels for internal radiation from dietary sources.

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ATOMIC ENERGY BUSINESS NEWS...

NEW FIRM BEING SET UP BY COMPANIES IN NUCLEAR FIELD: New company in the precision instrument field will be a joint undertaking of Canadian Radium and Uranium Corp., New York, and Cayzor Athabasca Mines, which formerly operated in the Beaverlodge area, N. Saskatchewan. The companies each hold 50% of the stock of the instrument firm. Cayzor funds are available for the new venture, particularly since a $2,500,000 settlement was recently negotiated by the company for the undelivered balance of its uranium contract, following closing of its mine. (The Cayzor plant and machinery are being dismantled and crated and stores being boxed; company officials feel upwards of $300,000 might be obtained if they were sold, but plans now are to retain them for a possible new mining venture.)

NUCLEAR CONSULTING FIRM ESTABLISHED: Nuclear Technology Corp., Irvington, N.Y., is a newly formed nuclear consulting firm headed by Joseph De Felice as president. Mr. De Felice was with Nuclear Development Corp. of America, White Plains, for the past six years, where he was manager of the preliminary design department. His experience included the analysis and design of all important reactor types. The activities of Nuclear Technology Corp. will include all phases of nuclear analysis, design and evaluation, including reactor physics, heat transfer and fluid flow, shielding, reactor evaluation, and nuclear economics.

FIRST WORK ON ITALIAN NUCLEAR POWER PLANT: First construction work is underway at site between Rome and Naples on a 150,000 kw nuclear power station being built by General Electric Co. for Societa Elettro-nucleare Nazionale (SENN). Activities center at present on foundations of the reactor and the power plant building. GE's atomic power equipment department, San Jose, Calif., has designed the station's dual-cycle boiling water reactor, and will construct certain components and fuel at San Jose. A large per cent of the equipment will be manufactured in Italy. Ebasco Services, Inc., New York, are handling station engineering. International General Electric, S.A., a Swiss subsidiary of GE, is supervising the project as prime contractor. (SENN, a group of Italian utilities, obtained a loan of $40 million last Fall from the World Bank to help finance the project. It is hoped to have the plant in operation late in 1963.)

ATOMIC ENERGY CONTRACT NEWS...

NUCLEAR FUEL CONTRACT LET: Contract to supply 1,200 kilograms of highly enriched uranium metal to Argonne National Laboratory has been awarded Mallinckrodt Nuclear Corp., St. Louis, Mo. The major portion of the metal, with value of over $20 million, will be used in the fast reactor ZPR-6 at Argonne. This is a new experimental reactor designed to investigate various fuel configurations and the effect of these fuels on various materials being considered for use in reactor construction. Production has already begun on the order at Mallinckrodt's Hematite, Mo., plant. Being used is a new process which converts the raw material uranium hexafluoride directly into uranium tetrafluoride and then into metal by conventional means. This is a Mallinckrodt-developed process and only recently was it put into standard full-scale production.

NUCLEAR RESEARCH REACTOR FOR FINLAND: Finland's first research reactor will be supplied by General Atomic division of General Dynamics Corp., San Diego, Calif., under contract awarded the U.S. firm by the Finnish Ministry of Commerce and Industry. The reactor to be supplied will be General Atomic's Triga-type, and will serve as the nucleus of a new reactor research and training center at Otaniemi, near Helsinki. The 20% enriched uranium used in the Triga homogeneous fuel-moderator elements of uranium-zirconium hydride will be supplied to Finland from the U.S. allocation of special fissionable material to the International Atomic Energy Agency. This will be the first time the IAEA has acted as "world broker" in helping member countries acquire research reactors and the enriched fuel for their operation from the pool of fissionable material placed at the Agency's disposal by the U.S., U.K. and U.S.S.R. (The U.S.S.R. will supply Finland with fuel element fabrication and 10% enriched uranium for a critical assembly.)

GAS-COOLED REACTOR AT OAK RIDGE TO BE TVA-OPERATED: Tennessee Valley Authority has been selected by the USAEC to operate through June 30, 1968 the Commission's flexible experimental prototype gas-cooled reactor at Oak Ridge, Tenn. The $30 million facility is scheduled for completion in late 1962. It will enable testing fuel elements, gas coolants and reactor materials in connection with the Commission's gas-cooled reactor development program. It will also generate about 25,000 electrical kw for use at Oak Ridge.

ATOMIC ENERGY PATENT & TRADE-MARK DIGEST...

PATENTS ISSUED May 24, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Radioactivity analysis. Alexander S. McKay, inventor. No. 2,938,119 assigned to Texaco, Inc. (2) Stabilized pulse-rate counting meter. James M. Constable, inventor. No. 2,938,123 assigned to Electronic Products Co., Mt. Vernon, N.Y.

PATENTS ISSUED May 24, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Portable radiation thickness gauge. Thomas F. Boyd, inventor. No. 2,938,124 assigned to Secretary of the Navy. (2) Method of joining aluminum to stainless steel. Lloyd C. Lemon, inventor. No. 2,937,438 assigned to USAEC. (3) Tube shearing valve. L. B. Wilner, inventor. No. 2,937,654 assigned to USAEC. (4) Solvent extraction process for uranium from chloride solutions. Charles A. Blake, Jr., Keith B. Brown, Donald E. Horner, inventors. No. 2,937,925 assigned to USAEC. (5) Separation of plutonium from fission products by a colloid removal process. Jack Schubert, inventor. No. 2,937,924 assigned to USAEC. (6) Method of producing niobium metal. Harley A. Wilhelm, Ernest R. Stevens, inventors. No. 2,937,939 assigned to USAEC. (7) Suppression of water decomposition. Augustine O. Allen, Clarence J. Hochanadel, inventors. No. 2,937,981 assigned to USAEC. (8) Method of making uranium oxide-bismuth slurries. Harold T. Hahn, inventor. No. 2,937,982 assigned to USAEC. (9) Plastic film abrasive sheet. Karl F. Nefflen, inventor. No. 2,937,934 assigned to USAEC. (10) Control rod drive. Robert A. Chapellier, inventor. No. 2,937,984 assigned to USAEC. (11) Personnel neutron dosimeter. Joseph J. Fitzgerald, Charles G. Detwiler, Jr., inventors. No. 2,938,121 assigned to USAEC.

PATENTS ISSUED May 31, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Irradiation method and apparatus. Roy C. Gordon, Bertie S. Harrington, inventors. No. 2,938,804 assigned to Armour and Co., Chicago, Ill. (2) Uranium oxide impregnated compacts and method for making same. Frederick Fahnoe, James J. Shyne, inventors. No. 2,938,839 assigned to Vitro Corp. of America, Verona, N.J. (3) Preparation of zirconium for cold working. Kenneth H. Dale, inventor. No. 2,938,841 assigned to Olin Mathieson Chemical Corp., E. Alton, Ill. (4) Radioactive analysis of cracking catalysts. Vincent P. Guinn, Charles P. Brewer, inventors. No. 2,938,860 assigned to Shell Oil Co. (5) Apparatus for electrically charging particles suspended in an air current by means of radioactive preparations. Karl Oswald, inventor. No. 2,939,006 assigned to G. A. Messen-Jaschin, Sarnen, Switzerland. (6) Directional radiation detector. Serge A. Scherbatskoy, inventor. No. 2,939,010 issued to inventor of record. (7) Non-destructive testing. Serge A. Scherbatskoy, inventor. No. 2,939,012 issued to inventor of record. (8) Wear test method and apparatus. Louis A. Bisso, Harry G. Hall, inventors. No. 2,939,011 assigned to Tidewater Oil Co. (9) Nuclear reactor with horizontal control rod moving mechanisms. Clive M. Yeomans, inventor. No. 2,938,847 assigned to The Martin Co., Middle River, Md.

PATENTS ISSUED May 31, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Time selectors. Henri Guillon, Jean Thenard, inventors. No. 2,930,002 assigned to Commissariat a l'Energie Atomique, Paris, France. (2) Transistor circuit. George B. B. Chaplin, inventor. No. 2,939,047 assigned to U. K. Atomic Energy Authority, London, England. (3) Method of separating plutonium from metathesized bismuth phosphate carrier. William J. Knox, Stanley G. Thompson, inventors. No. 2,938,768 assigned to USAEC. (4) Separation of hafnium from zirconium. Lyle G. Overholser, Charles J. Barton, Sr., John W. Rumsey, inventors. No. 2,938,769 assigned to USAEC. (5) Nuclear fuel composition. Frank H. Spedding, Harley A. Wilhelm, inventors. No. 2,938,784 assigned to USAEC. (6) Nuclear reactor counter method and system. Clifton B. Graham, Irving Spiewak, inventors. No. 2,938,844 assigned to USAEC. (7) Superheating in a boiling water reactor. Michael Treshow, inventor. No. 2,938,845 assigned to USAEC. (8) Fuel element fabrication method. Joseph N. Hix, John E. Cunningham, George E. Cooley, inventors. No. 2,938,846 assigned to USAEC. (9) Method of producing shaped bodies from powdered metals. Alan Blainey, inventor. No. 2,938,791 assigned to USAEC. (10) Method of making refractory bodies. James C. Andersen, inventor. No. 2,938,807 assigned to USAEC. (11) Fuel elements for nuclear reactors. Conrad M. Ladd, Walter J. Miller, inventors. No. 2,938,848 assigned to USAEC. (12) High pressure dies. Wendell B. Wilson, inventor. No. 2,938,998 assigned to USAEC.

TRADE-MARK NEWS: Trade-mark "Numec" (SN-77,220) is to be issued Nuclear Materials and Equipment Corp., Apollo, Pa., for fuel and other products for nuclear reactors.....Trade-mark "Radcell" (SN-82,168) is scheduled for issue to Victoreen Instrument Co., Cleveland, Ohio, for gamma irradiators.

RAW MATERIALS...prospecting, mining, marketing...

BRAZIL: Uranium processing plant is being built by the Brazilian government at Pocos de Caldas, in the State of Minas Gerais, near the border with Sao Paulo. Annual processing capacity is expected to be 10,000 tons of ore, from which about 60 tons of impure sodium uranate will be obtained. Purification of the uranate will be done in another plant which is to be built.

CANADA: Quebec Lithium Corp. will have its lithium refinery on stream by July of this year, according to company officials. The company's plant, for production of lithium chemicals from its mine north of Val d'Or, Quebec, was scheduled to go into operation earlier this year. The company said the delay was due to modifications to allow use of a new and improved treatment process developed late in 1959. The company is optimistic about new industrial markets, Pierre Beauchemin said in the firm's annual report. (Earnings were severely affected during 1959 when Lithium Corp. of America refused to accept from the Canadian firm delivery of spodumene concentrates according to the contract between the two firms. The USAEC had stopped its purchases from Lithium Corp., and the U.S. firm felt it could not use the raw material. After a legal action was started, the U.S. firm agreed to pay Quebec Lithium $1,900,000 in installments to 1963.)

MEETINGS, COURSES, CONFERENCES...

SYMPOSIUM: Series of six symposia on Isotopes in Industry will be held in New York state by the Western New York Nuclear Research Center at Buffalo, over a period of the next ten months. The first such symposium is scheduled for June 24, 1960 at the University of Buffalo. (Industrial firms in New York may display at the symposia at no charge; they should advise Ralph F. Lumb, Director, Western New York Nuclear Research Center, University of Buffalo, N.Y.)

MEETINGS: Seventh annual meeting of the Society of Nuclear Medicine will be held June 22-25, 1960 at the Stanley Hotel, Estes Park, Colo. Information, etc., may be obtained from the Society at 430 No. Michigan Ave., Chicago 11, Ill.

First annual meeting of the Institute of Nuclear Materials Management is planned for June 20-21, 1960 at the Neil House, Columbus, Ohio. Program chairman is Harley L. Toy, Battelle Memorial Institute, Columbus, Ohio.

ATOMIC ENERGY FINANCIAL NEWS...

INSTRUMENT MAKER EXPECTS HIGHER NET IN LAST FISCAL QUARTER: An increase in the net of Beckman Instruments, Inc., to $757,600 in the company's fourth fiscal quarter, from $338,805 in the like period a year ago, is expected by the firm according to W. W. Wright, financial vice-president. (For the nine months ended Mar. 31, 1960 profits rose to $1.75 a share from $1.06 in the similar 1959 period.) Fiscal 1960 sales may rise to a record $55 million from $44.7 million the previous year, Mr. Wright predicted. The 25 year old company, now operating some six divisions, was one of the first U.S. producers of radiation measuring and detecting devices. It has never declared a cash dividend, but has given 3% in stock on two occasions: in 1956 and 1957. In view of current profit gains, another stock dividend is being considered by the directors, Mr. Wright said.

URANIUM MINING OPERATION EXPECTS TO PAY CONSTANT DIVIDEND: Gunnar Mines, at Lake Athabaska, Saskatchewan, Canadian uranium producer, expects to be able to pay a dividend of about $1.60 per share per year for the period to Dec. 31, 1963, the end of its contract period, G. A. LaBine told the annual meeting last fortnight. Earnings are estimated from Gunnar's present contracts, which include those of Rayrock Mines, and Canadian Dyno Mines; the latter had been bought to stretch-out at a profit the productive life of Gunnar's Lake Athabaska operation. Mr. LaBine noted that a breakdown of 1959 costs for producing concentrates showed that of a total cost of $2.70 per pound, 90¢ was for mining, $1.23 for milling, 44¢ for mine administration, and 13¢ per pound for head office expense.

NEW PUBLIC STOCK OFFERING: Registration of some 120,000 shares of common stock has been asked by Edgerton, Germeshausen & Grier, Inc., Boston, holder of prime USAEC contracts involving weapons instrumentation, etc. The company intends to use proceeds for new equipment and to increase inventories. Four officials are offering 20,000 shares, of the total offering.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: New line of stainless steel preflush flow counters is now available from this manufacturer in 1" or 2" sample sizes. The sample is introduced to a preflush chamber to eliminate customary purging. Beta proportional plateau is 200-volts, slope 2%/100 volts. The counting chamber may be removed and used for window counting, if desired. --Instrument & Development Products Co., Inc., 355 W. 109th Place, Chicago, Ill.

Precision logarithmic count rate meter measures neutron pulses originating in reactors and other radiation sources over a six-decade range. Extended range of the instrument, one of a family of standard industrial nuclear instruments now being made by this firm, permits nuclear monitoring of signals having wide statistical deviation without changing range. --General Electric Co., Atomic Power Equipment Dep't., San Jose, Calif.

PRODUCT NEWS: U.S. producers of zirconium expect that chemical industry uses of zirconium will soon exceed nuclear reactors as the largest outlets for the metal, according to M. C. Bartholomew of Carborundum Metals. Mr. Bartholomew told a recent seminar on zirconium at New York University sponsored by Carborundum that continued lower prices for the refined metal as well as its improved malleability and better corrosion resistance than earlier production would be a factor in its increased use for chemical processing equipment.

Georgia Division of Lockheed Aircraft Co. will construct under recently-issued USAEC permit low-power pool type nuclear reactor at its Georgia Nuclear Laboratories in Dawson County, Ga. The reactor will be leased by the Commission and used for exhibit purposes in a tour of four South American countries beginning with the Argentina Sesquicentenniel Exposition in Buenos Aires late this year.

Some 1,581,000-lbs. of fused vanadium pentoxide offered for sale on a high-bid basis by the USAEC's Grand Junction, Colo., office have been bought by Vanadium Corp. of America. The company was high bidder at $1 per pound for the material. Eleven other firms had submitted bids, at prices ranging from 2¢ per pound to $1.03 for part of the entire offering. It was in some 22 lots, and bids could be made for part or all of the material. (The vanadium pentoxide had been bought over the years by the USAEC from uranium processing mills.)

Land-based trainer is being built by Republic Aviation Corp., Farmingdale, L.I., N.Y., for the U.S. Naval Training Device Center. It will be used to teach submarine crew members special operations required in nuclear submarines.

MEDICAL NOTES: Working with sulfhydryl compounds and dry bacterial spores, research people at Argonne National Laboratory, Ill., found that sulfhydryls (cysteine found in living tissue) can retard cell from ionizing radiation by reducing the concentration of radiation-induced oxygen and free radicals which cause such damage. The work may enable measures to protect living cells against radiation sickness.

Total-body radioactivity counting room is now in operation at the Medical Center, University of California, Los Angeles. The laboratory consists of an 8x8x8-ft. vault with six inch thick steel walls, ceiling and floor and a battery of sensitive radioactivity detecting devices and recording instruments. Clinical studies to be carried out with the new facility will include studies of the more subtle phase of body chemistry involving metal ions; bone studies involving calcium and strontium; and work on new diagnostic procedures requiring only infinitesimal amounts of radioactive materials.

MANUFACTURERS' LITERATURE: Ultra-high purity radioactive gases and special mixtures, argon, neon, helium, krypton, xenon are described in new 16-page booklet offered by Linde Co., Div. of Union Carbide Corp., 270 Park Ave., New York 17.

New 64-page catalog of nuclear laboratory instruments and related accessories is available from Tracerlab, Inc., Waltham 54, Mass.

Revised price list for its rare earth metals may be obtained from Research Chemicals Div., Nuclear Corp. of America, Burbank, Calif.

Catalog No. 460 of Volk Radiochemical Co., Chicago 40, Ill., lists some 700 routinely available radioactive and stable isotopically labeled compounds the company supplies.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

June 7, 1960